WHAT IS CLAIMED IS:

1. A method of processing burst information in a transmission link, comprising the steps of:

receiving a sampled waveform containing a record of symbols imposed on a carrier signal;

determining symbol phase of said record of symbols utilizing one or more metrics;

processing said sample waveform to remove said carrier signal;

calculating phase ambiguity of the burst information; and

indexing an arrival time of the burst information.

2. The method of Claim 1, wherein one of said one or more metrics in the step of determining is a maximized square symbol amplitude.

3. The method of Claim 1, wherein one of said one or more metrics in the step of determining is a maximized symbol amplitude.

4. The method of Claim 1, wherein one of said one or more metrics in the step of determining is a minimized symbol variance.

5. The method of Claim 1, wherein said symbol phase is determined with a 5-point correlation using sinusoidal functions.

6. The method of Claim 1, wherein phase and frequency of a residual carrier of said carrier signal is estimated in the step of processing prior to the removal of said carrier signal.

7. The method of Claim 6, wherein said phase and frequency of said residual carrier is estimated in the step of processing prior to a step of down-converting to remove said residual carrier.

8. The method of Claim 1, wherein the step of processing further comprises a step of computing a FFT on a fixed block of symbols of said record.

9. The method of Claim 8, wherein said fixed block of symbols is an unpadded block of symbols.

10. The method of Claim 8, wherein said fixed block of symbols is a padded block of symbols.

11. The method of Claim 1, further comprising a step of locating a unique bit pattern of symbols in said record prior to performing the steps of calculating and indexing.

12. The method of Claim 11, wherein said unique bit pattern of symbols is an extended Hamming code word compatible for use in FEC decoding.

13. The method of Claim 11, wherein said unique bit pattern of symbols is located in the locating step by further,

correlating said record of symbols with one or more predetermined sequences of symbols, and

selecting parameters associated with a maximum positive correlation of said record of symbols and said one or more predetermined sequences of symbols.

14. The method of Claim 13, wherein said parameters in the step of selecting include a time offset value and a phase rotation value which are used to generate said maximum positive correlation.

15. The method of Claim 1, wherein each record of symbols in the step of receiving is sampled at five times the symbol rate.

16. The method of Claim 1, wherein said carrier signal in the step of receiving is a MF-TDMA structure.

17. The method of Claim 1, wherein said carrier signal in the step of receiving is transmitted wirelessly.

18. The method of Claim 1, wherein said carrier signal in the step of receiving is transmitted wirelessly in a satellite return transmission link.

19. An apparatus for processing burst information in a transmission link, comprising:

a waveform sampler for sampling a received waveform imposed on a carrier signal, said sampled waveform having a record of symbols;

a determinator for determining symbol phase of said record of symbols utilizing one or more metrics;

a processor for processing said sampled waveform to remove said carrier signal;

a resolver for determining phase ambiguity of the burst information; and

a detector for detecting a time of arrival of the burst information.

20. The apparatus of Claim 19, wherein one of said one or more metrics utilized by said determinator is a maximized square symbol amplitude.

21. The apparatus of Claim 19, wherein one of said one or more metrics utilized by said determinator is a maximized symbol amplitude.

22. The apparatus of Claim 19, wherein one of said one or more metrics utilized by said determinator is a minimized symbol variance.

23. The apparatus of Claim 19, wherein said symbol phase is determined with a 5-point correlation using sinusoidal functions.

24. The apparatus of Claim 19, further comprising an estimator for estimating the phase and frequency of a residual carrier of said carrier signal prior to the removal of said carrier signal.

25. The apparatus of Claim 24, wherein said phase and frequency of the residual carrier is estimated by said estimator prior to a down-converter removing said residual carrier.

26. The apparatus of Claim 19, wherein a FFT is computed on a fixed block of symbols of said record.

27. The apparatus of Claim 26, wherein said fixed block of symbols is an unpadded block of symbols.

28. The apparatus of Claim 26, wherein said fixed block of symbols is a padded block of symbols.

29. The apparatus of Claim 19, wherein a unique bit pattern of symbols in said record of symbols is located prior to said resolver calculating said phase ambiguity and said detector detecting said time of arrival.

30. The apparatus of Claim 29, wherein said unique bit pattern of symbols is an extended Hamming code word compatible for use in FEC decoding.

31. The apparatus of Claim 29, wherein said unique bit pattern of symbols is located with a correlator by correlating said record of symbols with one or more predetermined sequences of symbols, and selecting parameters associated with a maximum positive correlation of said record of symbols and said one or more predetermined sequences of symbols.

32. The apparatus of Claim 31, wherein said selected parameters include a time offset value and a phase rotation value which are used to generate said maximum positive correlation.

33. The apparatus of Claim 19, wherein each said record of symbols is sampled at five times the symbol rate.

34. The apparatus of Claim 19, wherein said carrier signal comprises a MF-TDMA structure.

35. The apparatus of Claim 19, wherein said carrier signal is transmitted wirelessly.

36. The apparatus of Claim 19, wherein said carrier signal is transmitted wirelessly in a satellite return transmission link.

37. A method of processing burst information in a transmission link, comprising the steps of:

receiving a sampled waveform containing a record of symbols imposed on a carrier signal;

determining symbol timing of said record of symbols utilizing one or more metrics;

processing said sample waveform to remove said carrier signal by,

estimating residual carrier phase and frequency, and

down-converting to remove said carrier signal,

and,

determining phase ambiguity and burst arrival time by detecting a unique pattern of symbols word in said record of symbols.

38. The method of Claim 34, wherein said one or more metrics in the step of determining include a maximized symbol amplitude, a maximized square symbol amplitude, or a minimized symbol variance.

39. The method of Claim 37, wherein symbol phase of said symbol timing is determined with a 5-point correlation using sinusoidal functions.

40. The method of Claim 37, wherein the step of processing further comprises a step of computing a FFT of a fixed block of symbols of said record.

41. The method of Claim 40, wherein said fixed block of symbols in the step of computing is an unpadded block of symbols.

42. The method of Claim 40, wherein said fixed block of symbols in the step of computing is a padded block of symbols.

43. The method of Claim 37, wherein said unique pattern of symbols is an extended Hamming code word compatible for use in FEC decoding.

44. The method of Claim 37, wherein said unique pattern of symbols in the step of determining is located by correlating said record of symbols with one or more predetermined sequences of symbols, and selecting parameters associated with a maximum positive correlation of said record of symbols and said one or more predetermined sequences of symbols.

45. The method of Claim 37, wherein said carrier signal in the step of receiving is a MF-TDMA structure.

46. The method of Claim 37, wherein said carrier signal in the step of receiving is transmitted wirelessly.

47. The method of Claim 37, wherein said carrier signal in the step of receiving is transmitted wirelessly in a satellite return transmission link.

48. An apparatus for processing burst information in a transmission link, comprising:

a waveform sampler for sampling a received waveform imposed on a carrier signal, said sampled waveform having a record of symbols;

a determinator for determining symbol timing of said record of symbols utilizing one or more metrics;

a processor for processing said sampled waveform in phase and frequency to remove said carrier signal;

a resolver for resolver phase ambiguity of the burst information; and

a detector for detecting a time of arrival of the burst information.

49. The apparatus of Claim 48, wherein one of said one or more metrics utilized by said determinator is a maximized square symbol amplitude, a maximized symbol amplitude, or a minimized symbol variance.

50. The apparatus of Claim 48, wherein symbol phase of said symbol timing is determined with a 5-point correlation using sinusoidal functions.

51. The apparatus of Claim 48, further comprising an estimator for estimating the phase and frequency of a residual carrier of said carrier signal prior to the removal of said carrier signal.

52. The apparatus of Claim 48, wherein a FFT is computed on a fixed block of symbols of said record, and said fixed block of symbols is an unpadded block of symbols.

53. The apparatus of Claim 48, wherein a FFT is computed on a fixed block of symbols of said record, and said fixed block of symbols is a padded block of symbols.

54. The apparatus of Claim 29, wherein a unique bit pattern of symbols is located with a correlator by correlating said record of symbols with one or more predetermined sequences of symbols, and selecting parameters associated with a maximum positive correlation of said record of symbols and said one or more predetermined sequences of symbols.

55. The apparatus of Claim 54, wherein said selected parameters include a time offset value and a phase rotation value which are used to generate said maximum positive correlation.

56. The apparatus of Claim 48, wherein each said record of symbols is sampled at five times the symbol rate.

57. The apparatus of Claim 48, wherein said carrier signal is transmitted wirelessly.

58. The apparatus of Claim 48, wherein said carrier signal is transmitted wirelessly in a satellite return transmission link.

59. A method of processing burst information in a transmission link, comprising the steps of:

receiving a sampled waveform containing a record of symbols imposed on a carrier signal;

determining symbol timing of said record of symbols utilizing one or more metrics;

processing said sample waveform in phase and frequency to remove said carrier signal;

calculating phase ambiguity of the burst information; and

indexing an arrival time of the burst information.

60. The method of Claim 59, wherein symbol phase of said symbol timing is determined in the step of determining utilizing one of said one or more metrics which is a maximized square symbol amplitude.

61. The method of Claim 59, wherein symbol phase of said symbol timing is determined in the step of determining utilizing one of said one or more metrics which is a maximized symbol amplitude.

62. The method of Claim 59, wherein symbol phase of said symbol timing is determined in the step of determining utilizing one of said one or more metrics which is a minimized symbol variance.

63. The method of Claim 59, wherein symbol phase of said symbol timing is determined in the step of determining with a 5-point correlation using sinusoidal functions.

64. The method of Claim 59, wherein said phase and frequency of a residual carrier of said carrier signal is estimated in the step of processing prior to the removal of said carrier signal.

65. The method of Claim 64, wherein said phase and frequency of said residual carrier is estimated in the step of processing prior to a step of down-converting to remove said residual carrier.

66. The method of Claim 59, wherein the step of processing further comprises a step of computing a FFT on a fixed block of symbols of said record.

67. The method of Claim 66, wherein said fixed block of symbols is an unpadded block of symbols.

68. The method of Claim 66, wherein said fixed block of symbols is a padded block of symbols.

69. The method of Claim 59, further comprising a step of locating a unique bit pattern of symbols in said record prior to performing the steps of calculating and indexing.

70. The method of Claim 69, wherein said unique bit pattern of symbols is an extended Hamming code word compatible for use in FEC decoding.

71. The method of Claim 69, wherein said unique bit pattern of symbols is located in the locating step by further,

correlating said record of symbols with one or more predetermined sequences of symbols, and

selecting parameters associated with a maximum positive correlation of said record of symbols and said one or more predetermined sequences of symbols.

72. The method of Claim 71, wherein said parameters in the step of selecting include a time offset value and a phase rotation value which are used to generate said maximum positive correlation.

73. The method of Claim 59, wherein each record of symbols in the step of receiving is sampled at five times the symbol rate.

74. The method of Claim 59, wherein said carrier signal in the step of receiving is a MF-TDMA structure.

75. The method of Claim 59, wherein said carrier signal in the step of receiving is transmitted wirelessly.

76. The method of Claim 59, wherein said carrier signal in the step of receiving is transmitted wirelessly in a satellite return transmission link.

77. A method of processing burst information in a transmission link, comprising the steps of:

receiving a sampled waveform containing a record of symbols imposed on a carrier signal;

determining symbol timing of said record of symbols utilizing one or more metrics;

processing said sample waveform to remove said carrier signal; and

calculating phase ambiguity and time of arrival of the burst information by midamble detection.

78. The method of Claim 77, wherein symbol phase of said symbol timing is determined in the step of determining utilizing one of said one or more metrics which is a maximized square symbol amplitude.

79. The method of Claim 77, wherein symbol phase of said symbol timing is determined in the step of determining utilizing one of said one or more metrics which is a maximized symbol amplitude.

80. The method of Claim 77, wherein symbol phase of said symbol timing is determined in the step of determining utilizing one of said one or more metrics which is a minimized symbol variance.

81. The method of Claim 77, wherein symbol phase of said symbol timing is determined in the step of determining with a 5-point correlation using sinusoidal functions.

82. The method of Claim 77, wherein phase and frequency of a residual carrier of said carrier signal is estimated in the step of processing prior to the removal of said carrier signal.

83. The method of Claim 82, wherein said phase and frequency of said residual carrier is estimated in the step of processing prior to a step of down-converting to remove said residual carrier.

84. The method of Claim 77, wherein the step of processing further comprises a step of computing a FFT on a fixed block of symbols of said record.

85. The method of Claim 84, wherein said fixed block of symbols is an unpadded block of symbols.

86. The method of Claim 84, wherein said fixed block of symbols is a padded block of symbols.

87. The method of Claim 77, wherein said midamble is an extended Hamming code word compatible for use in FEC decoding.

88. The method of Claim 77, wherein said midamble is detected in the calculating step by further,

correlating said record of symbols with one or more predetermined sequences of symbols, and

selecting parameters associated with a maximum positive correlation of said record of symbols and said one or more predetermined sequences of symbols.

89. The method of Claim 88, wherein said parameters in the step of selecting include a time offset value and a phase rotation value which are used to generate said maximum positive correlation.

90. The method of Claim 77, wherein each record of symbols in the step of receiving is sampled at five times the symbol rate.

91. The method of Claim 77, wherein said carrier signal in the step of receiving is a MF-TDMA structure.

92. The method of Claim 77, wherein said carrier signal in the step of receiving is transmitted wirelessly.

93. The method of Claim 77, wherein said carrier signal in the step of receiving is transmitted wirelessly in a satellite return transmission link.